

Claims

1. A fluid dispensing device for dispensing a fluid product having:-
a dispensing outlet from which the fluid product is dispensable,
5 a supply of the fluid product,
a dispensing member mounted for movement in a dispensing direction
along an axis from a first position to a second position which causes a
dose of the fluid product in the supply to be dispensed from the
dispensing outlet, and
10 a finger-operable actuator member mounted for movement in an
actuating direction which is generally transverse to the axis,
wherein the actuator member has at least one cam surface and the
dispensing member has at least one cam follower surface,
wherein the actuator member is movable in the actuating direction to
15 cause the at least one cam surface to bear against the at least one cam
follower surface to force the at least one cam follower surface to ride over
the cam surface to cam the dispensing member in the dispensing direction
from the first position to the second position,
wherein the at least one cam surface has a commitment section, oriented
20 at a first angle to the axis, and an adjacent drive section, which is
oriented at a second angle to the axis which is greater than the first
angle,
wherein the device is configured and arranged such that, in use, the at
least one cam follower surface successively rides over the commitment
25 and drive sections of the at least one cam surface, on movement of the
actuator member in the actuating direction, to cam the dispensing
member from the first position to the second position, and
wherein the first angle is selected such that a minimum actuating force is
required to be applied to the actuator member to cause the at least one
30 cam follower surface to ride over the commitment section onto the drive
section.

2. The device of claim 1, wherein the first angle is in the range of about 20-35°.
- 5 3. The device of claim 1 or 2, wherein the commitment section is planar.
4. The device of claim 1, 2 or 3, wherein the minimum actuating force is in the range of about 20-45N.
- 10 5. The device of any of the preceding claims, wherein the second angle is in the range of about 40-60°.
6. The device of any of the preceding claims, wherein the drive section
15 has an arcuate transition portion contiguous with the commitment section.
7. The device of claim 6, wherein the transition portion has a radius of curvature in the range of about 1-5mm.
- 20 8. The device of any of claims 1 to 6, wherein the drive section is arcuate.
9. The device of claim 8, wherein the drive section has a first portion of a first radius of curvature contiguous with the commitment section and
25 a second portion, contiguous with the first portion, of a second radius of curvature which is greater than the first radius of curvature.
10. The device of claim 9, wherein the drive section consists of the first and second portions.

11. The device of any of the preceding claims, wherein the commitment section is of a first length and the drive section is of a second length greater than the first length.
- 5 12. The device of any of the preceding claims, wherein the minimum actuating force is in the range of about 25-40N.
13. The device of any of the preceding claims, wherein the at least one cam follower surface is arcuate.
- 10 14. The device of claim 9 or any claim appended thereto, wherein the second portion has a radius of curvature in the range of about 15-40mm
- 15 15. The device of any of the preceding claims, wherein the actuator member is mounted in the device for movement on an arcuate path in the actuating direction.
- 20 16. The device of any of the preceding claims, configured and arranged such that the first angle to the axis becomes steeper as the actuator member moves in the actuating direction.
17. The device of any of the preceding claims, configured and arranged such that the second angle to the axis remains constant, or substantially constant, as the actuator member moves in the actuating direction.
- 25 18. The device of any of the preceding claims, wherein the actuator member is mounted for pivotal movement about a first end thereof and the at least one cam surface is disposed on the actuator member remote from the first end.

19. The device of any of the preceding claims, wherein the dispensing member is a dispensing container in which the supply of the fluid product is contained.

5 20. The device of claim 18 or claims 18 and 19, wherein the dispensing direction is an upward direction and the first end of the actuator member is a lower end thereof.

21. The device of claim 20, wherein the at least one cam follower
10 surface is disposed towards an upper end of the dispensing member.

22. The device of claim 19 or any claim appended thereto, wherein the dispensing container has a pump which is caused to pump the dose of the fluid product from the dispensing outlet in response to the dispensing
15 container being moved in the dispensing direction by the actuator member.

23. The device of any of the preceding claims, wherein the actuator member is the sole actuator member.

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24. The device of any of the preceding claims, wherein the dispensing outlet is in a nozzle sized and shaped for insertion into a body cavity.

25. The device of claim 24, wherein the nozzle is for insertion into a
25 nostril of a human or animal body.

26. The device of any of the preceding claims, wherein the fluid product is a medicament.

27. The device of any of the preceding claims, wherein the dispensing member and housing have co-operating guide members for guiding movement of the dispensing member along the axis.

5 28. The device of claim 27, wherein the co-operating guide members prevent rotation of the dispensing member about the axis.

29. The device of claim 27 or 28, wherein one of the guide members comprises a runner and the other guide member comprises a track for the
10 runner.

30. A fluid dispensing device for dispensing a fluid product having:-
a dispensing outlet from which the fluid product is dispensable,
a supply of the fluid product,
15 a dispensing member mounted for movement in a dispensing direction along an axis which causes a dose of the fluid product in the supply to be dispensed from the dispensing outlet, and
a finger-operable actuator member mounted for movement in an actuating direction which is generally transverse to the axis,
20 wherein the actuator member has at least one cam surface and the dispensing member has at least one cam follower surface,
wherein the actuator member is movable in the actuating direction to cause the at least one cam surface to bear against the at least one cam follower surface to cam the dispensing member in the dispensing direction
25 to cause the fluid product dose to be dispensed from the dispensing outlet, and
wherein the actuator member further has a stop to stop the dispensing member being movable along the axis in a direction opposite the dispensing direction beyond a predetermined axial position to provide
30 alignment of the least one cam surface and the at least one cam follower surface.

31. The device of claim 30, wherein the stop comprises at least one stop surface engagable with a respective surface of the dispensing member.

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32. The device of claim 31, wherein the at least one stop surface extends generally transversely to the axis.

33. The device of claim 31 or 32, wherein the at least one stop surface
10 forms a continuation of the at least one cam surface.

34. The device of claim 31, 32 or 33, wherein the at least one surface of the dispensing member forms a continuation of the at least one cam follower surface.

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35. The device of any of claims 30 to 34, wherein the at least one cam surface is presented by a nose section of the actuator member.

36. The device of claim 35 when appended to any of claims 31 to 34,
20 wherein the at least one stop surface is presented by a tip portion of the nose section.

37. A fluid dispensing device for dispensing a fluid product having:-
a housing with a dispensing outlet, the housing adapted to receive therein
25 a dispensing container containing the fluid product for movement of the dispensing container along an axis from a rest position relative to the housing to a dispensing position relative to the housing which causes the dispensing container to dispense a dose of the fluid product through the dispensing outlet, the housing having an access opening through which
30 the dispensing container is insertable into the housing along the axis to the rest position, and

at least one finger-operable actuator member mounted in the housing for movement inwardly with respect to the housing, transverse to the axis, to cause the dispensing container to move from the rest position to the dispensing position,

- 5 wherein the actuator member is movable from an outward position with respect to the housing, which enables the dispensing container to be inserted through the access opening to the rest position in the housing, to an inward position with respect to the housing, which prevents the dispensing container being inserted through the access opening to the rest
10 position in the housing, but from which inward position the actuator member is able to be moved inwardly with respect to the housing to cause a dispensing container disposed in the rest position to move to the dispensing position, and
wherein the device has a releasable detent mechanism for selectively
15 holding the actuator member in its outward and inward positions.

38. The dispenser of claim 37, wherein the detent mechanism is on the housing and/or the actuator member.

- 20 39. The dispenser of claim 37 or 38, wherein the detent mechanism comprises a stop element on either the housing or the actuator member which is movable from a first position, which prevents movement of the actuator member between the outward and inward positions, to a second position, which enables movement of the actuator member between the
25 outward and inward positions.

40. The dispenser of claim 39, in which the detent mechanism comprises a bias to bias the stop element to its first position.

- 30 41. The dispenser of claim 39 or 40, in which the stop element is on the actuator member and abuts the housing in its first position.

42. A fluid dispenser adapted for dispensing a fluid product into the nasal cavity of a user having a nozzle sized and shaped for insertion into a nostril of the user and a housing in which the fluid product is containable,
5 wherein the housing has an opening in which the nozzle is received and a fastening mechanism which fastens the nozzle in the opening.

43. The dispenser of claim 42, wherein the housing houses a dispensing container which contains the fluid product and has a dispensing member,
10 wherein the nozzle has an outlet passageway through which, in use, the fluid product is dispensed from the dispenser, and wherein the container is positioned in the housing so that the dispensing member and the outlet passageway are in direct fluid communication.

15 44. The dispenser of claim 43, wherein the dispensing member is engaged with the outlet passageway.

45. The dispenser of any of claims 42 to 44, wherein the fastening mechanism has a clamp member which clamps the nozzle in the opening.
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46. The dispenser of any of claims 42 to 45, wherein the nozzle has a flange abutting an inner surface of the housing and the fastening mechanism fastens the flange to the inner surface to retain the nozzle in the opening.

25 47. The dispenser of claim 45 or claims 45 and 46, wherein the clamp member is a collar structure provided on the inner surface of the housing, the collar structure being bent or folded over the flange to clamp the flange to the inner surface.

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48. A set of component parts for manufacturing a plurality of fluid dispensers for dispensing a fluid product into a nasal cavity of a user, the set comprising a plurality of nozzles sized and shaped for insertion into a user's nostril and a plurality of housings for receiving a supply of the fluid
5 product, wherein each nozzle is identical, each housing has an opening for receiving one of the nozzles, and each housing further has a different characteristic from the others.

49. The set of claim 48, wherein each housing is of a different colour.

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50. The set of claim 48 or 49, wherein each housing is of a different shape.

51. The set of claim 48, 49 or 50, further comprising a plurality of
15 containers, one for each dispenser, each container containing an identical or different fluid medicament formulation.

52. A fluid dispenser adapted for dispensing a fluid product into the nasal cavity of a user having a nozzle sized and shaped for insertion into a
20 nostril of the user and a housing in which the fluid product is containable and which has an opening in which the nozzle is receivable, wherein the nozzle is made from a different material than the housing.

53. The dispenser of claim 52, wherein the nozzle and the housing are
25 of different plastics materials.